AMENDMENTS TO THE CLAIMS

1.   (currently amended)   A data processing method for a [[the]] hybrid automatic repeat request (HARQ) [[ARQ]] type II/III on an [[a]] uplink of a wide-band radio communication system, the method comprising the steps of:

a)   generating a radio link control (RLC) – protocol data unit (PDU) (RLC-PDU), (hereinafter, referred to as a RCL-PDU) used for combining pre-transmitted data and [[a]] re-transmitted data with a changeable coding rate, in a transmitting RLC a radio link control (hereinafter, referred to as a RLC) layer, and a HARQ-RLC-Control-PDU based on header information of the RLC-PDU; protocol data unit which includes information from the RLC-PDU (hereinafter, referred to as a HARQ-RLC-Control-PDU);

b)   transmitting the RLC-PDU and the HARQ-RLC-Control-PDU to a transmitting medium access control dedicated entity (MAC-D) of dedicated (hereinafter, referred to as a MAC-D) treating a general user part in a transmitting medium access control (MAC) (hereinafter, referred to as a MAC) layer through a first logical channel;

c)   transforming the RLC-PDU and the HARQ-RLC-Control-PDU received from the transmitting receiver RLC layer into a [[to]] MAC-PDU and a HARQ-MAC-Control-PDU, respectively, and then transmitting the transformed MAC-PDU and the HARQ-MAC-Control-PDU to a transmitting physical layer through a first transport channel; and

d)   transforming the MAC-PDU and the HARQ-MAC-Control-PDU received from the transmitting MAC-D to a radio transmission form, wherein at least the HARQ-MAC-Control PDU is encoded using a low coding rate, and then transmitting the radio transmission form [[them]] to a receiver through a physical channel the physical layer.

2.   (currently amended) The data processing method of as recited in the claim 1, wherein the HARQ-RLC-Control-PDU includes a sequence number and a version number of the RLC-PDU and data identifying information to identify the RLC-PDU.

3.   (currently amended) The data processing method of as recited in the claim 2, further comprising includes the steps of:

e)   upon receipt of the radio transmission form, storing the a received RLC-PDU to a buffer and generating a data identifier to identify the RLC-PDU, then transmitting the data identifier RLC-PDU and the HARQ-RLC-Control-PDU to a receiving [[the]] MAC-D of a [[the]] receiving MAC layer through a second transport channel;

f)   transmitting the data identifier and the HARQ-RLC-Control-PDU and the data identifier to a [[the]] receiving RLC layer through a second logical channel;

g)   transmitting the [[a]] sequence number and the [[a]] version number, acquired by analyzing the HARQ-RLC-Control-PDU, along with the data identifier, to a receiving radio resource control (RRC) layer (hereinafter, referred to as a RRC) layer with the data identifier;

h)   transmitting the sequence number, the version number and the data identifier to a receiving [[the]] physical layer;

i)   determining whether to decode the RLC-PDU stored in the buffer directly by using the sequence number, the version number and the data identifier, or to decode the RLC-PDU after combining the RLC-PDU with an [[the]] RLC-PDU of a previous version, and then transmitting the decoded RLC-PDU to the receiving a receiver physical layer;

j)   transmitting the decoded RLC-PDU to the receiving MAC-D through the second transport channel;

30

k)   transmitting the <u>decoded</u> RLC-PDU received from the receiving physical layer to the receiving RLC layer through the <u>second</u> logical channel; and

l)   transmitting the <u>decoded</u> RLC-PDU<u>,</u> after analyzing it in the <u>receiving</u> RLC layer<u>,</u> to <u>a receiving</u> [[an]] upper layer<u>,</u> and transmitting a response to the <u>transmitting</u> ~~receiver~~ RLC layer.

4.   (currently amended)   The data processing method <u>of</u> ~~as recited in the~~ claim 3, wherein ~~in the step g),~~ <u>step g) comprises</u> transmitting the sequence number and the version number<u>,</u> acquired by analyzing the HARQ-RLC-Control-PDU in the receiving RLC layer<u>, along with the data identifier,</u> to the receiving RRC layer through a <u>control RLC HARQ indication (CRLC-HARQ-IND) primitive</u> ~~CRLC-HARQ-IND primitive with the data identifier~~.

5.   (currently amended)   A data processing method for <u>a</u> [[the]] hybrid <u>automatic repeat request (HARQ)</u> [[ARQ]] type II/III on an uplink of a wide-band radio communication system, <u>the method</u> comprising the steps of:

a)   storing a radio link control <u>(RLC)</u> – protocol data unit <u>(PDU) (RLC-PDU)</u> ~~(hereinafter, referred to as a RCL-PDU)~~ to a buffer<u>,</u> [[and]] generating a data identifier to identify the RLC-PDU [[then]]<u>, and then</u> transmitting the <u>data identifier</u> ~~RLC-PDU with a~~ <u>and a</u> HARQ-RLC-Control-PDU <u>that</u> ~~protocol data unit which~~ includes information from the RLC-PDU ~~(hereinafter, referred to as a HARQ-RLC-Control-PDU)~~ to a medium access control <u>dedicated entity (MAC-D)</u> ~~dedicated (hereinafter, referred to as a MAC-D), which treats a general user equipment~~ of a <u>medium access control (MAC)</u> [[MAC]] layer, through a transport channel;

31

b)   transmitting the data identifier and the HARQ-RLC-Control-PDU and the data identifier to an [[the]] RLC layer through a logical channel;

c)   transmitting a sequence number and a version number, acquired by analyzing the HARQ-RLC-Control-PDU, along with the data identifier, to a radio resource control (RRC) layer (hereinafter, referred to as a RRC) with the data identifier;

d)   transmitting the sequence number, the version number and the data identifier to a [[the]] physical layer;

e)   determining whether to decode the RLC-PDU stored in the buffer directly by using the sequence number, the version number and the data identifier, or to decode the RLC-PDU after combining the RLC-PDU [[it]] with an RLC-PDU of a previous version, and then transmitting the decoded RLC-PDU to the [[a]] physical layer;

f)   transmitting the decoded RLC-PDU to the MAC-D through the transport channel;

g)   transmitting the decoded RLC-PDU received from the physical layer to the RLC layer through the logical channel; and

h)   transmitting the decoded RLC-PDU, after analyzing it in the RLC layer, to an upper layer, and transmitting a response to an [[the]] RLC layer of a [[the]] user equipment.

6.   (currently amended) The data processing method of as recited in claim 5, wherein [[in the]] step c) comprises transmitting the sequence number and the version number, acquired by analyzing the HARQ-RLC-Control-PDU in the RLC layer, along with the data identifier, to the RRC layer through a control RLC HARQ indication (CRLC-HARQ-IND) primitive CRLC-HARQ-IND primitive with the data identifier.

32

7.   (currently amended) The data processing method of as recited in claim 5, wherein in [[the]] step d) comprises transmitting the sequence number, the version number and the data identifier to a physical layer through a control physical layer HARQ request (CPHY-HARQ-REQ) CPHY-HARQ-REQ primitive.

8.   (currently amended) The data processing method of as recited in claim 5, wherein the radio communication system network is an asynchronous radio network.

9.   (currently amended) The data processing method of as recited in claim 1, wherein the first logical channel is a dedicated traffic channel (DTCH) for transmitting the RLC-PDU and the HARQ-RLC-Control-PDU.

10.   (currently amended) The data processing method of as recited in claim 1, wherein the first logical channel includes a dedicated traffic channel (DTCH) the DTCH and a dedicated control channel (DCCH) for transmitting the RLC-PDU and the HARQ-RLC-Control-PDU, respectively.

11.   (currently amended) The data processing method of as recited in claim 1, wherein the first transport channel is a dedicated channel (DCH) for transmitting the RLC-PDU and the HARQ-RLC-Control-PDU.

12.   (currently amended) The data processing method of as recited in claim 1, wherein the physical channel is a dedicated physical channel (DPCH) for transmitting the RLC-PDU and the HARQ-RLC-Control-PDU.

33

13.   (currently amended)   The data processing method of ~~as recited in~~ claim 1, <u>carried</u> <u>out by</u> ~~wherein the transmitter is~~ a user equipment (UE).

14.   (currently amended)   The data processing method <u>of</u> ~~as recited in~~ claim 13, wherein the receiver is part of an asynchronous radio network.

15.   (currently amended)   A computer readable data recording media having instructions for implementing a data processing method for a hybrid <u>automatic repeat request</u> <u>(HARQ)</u> [[ARQ]] type II/III on <u>an</u> [[a]] uplink of a wide-band radio communication system having a processor, <u>the method</u> comprising the functions of:

a)   generating a radio link control <u>(RLC)</u> – protocol data unit <u>(PDU) (RLC-PDU),</u> ~~(hereinafter, referred to as a RCL-PDU)~~ used for combining pre-transmitted data and [[a]] re-transmitted data with a changeable coding rate, in <u>a transmitting RLC</u> ~~a radio link control~~ ~~(hereinafter, referred to as a RLC)~~ layer [[and]], and a <u>HARQ-RLC-Control-PDU based on</u> <u>header information of the RLC-PDU;</u> ~~protocol data unit which includes information of the RLC-~~ ~~PDU (hereinafter, referred to as a HARQ-RLC-Control-PDU)~~;

b)   transmitting the RLC-PDU and the HARQ-RLC-Control-PDU to a <u>transmitting</u> medium access control <u>dedicated entity (MAC-D) of</u> ~~dedicated (hereinafter, referred to as a~~ ~~MAC-D) treating a general user part in~~ a <u>transmitting</u> medium access control <u>(MAC)</u> ~~(hereinafter, referred to as a MAC)~~ layer, through a <u>first</u> logical channel;

c)   transforming the RLC-PDU and the HARQ-RLC-Control-PDU received from the <u>transmitting</u> RLC layer <u>into a</u> [[to]] MAC-PDU and <u>a</u> HARQ-MAC-Control-PDU<u>, respectively,</u>

34

and transmitting the ~~transformed~~ MAC-PDU and the HARQ-MAC-Control-PDU to a transmitting physical layer through a <u>first</u> transport channel; and

d)   transforming the MAC-PDU and the HARQ-MAC-Control-PDU received from the MAC-D to a radio transmission form<u>, wherein at least the HARQ-MAC-Control PDU is encoded using a low coding rate,</u> and then transmitting <u>the radio transmission form</u> [[them]] to a receiver through <u>a physical channel</u> ~~the physical layer~~.

16.   (currently amended)   The computer readable data recording media <u>of</u> ~~as recited in~~ claim 15, <u>wherein the method</u> further includes the functions of:

e)   storing <u>the</u> [[a]] received RLC-PDU to a buffer and generating a data identifier to identify the RLC-PDU, then transmitting the <u>data identifier</u> ~~RLC-PDU~~ and the HARQ-RLC-Control-PDU to <u>a receiving</u> [[the]] MAC-D of <u>a</u> [[the]] receiving MAC layer through <u>a second</u> [[the]] transport channel;

f)   transmitting <u>the data identifier and</u> the HARQ-RLC-Control-PDU ~~and the data identifier~~ to <u>a</u> [[the]] receiving RLC layer through a <u>second</u> logical channel[[,]]<u>;</u>

g)   transmitting a sequence number and a version number<u>,</u> acquired by analyzing the HARQ-RLC-Control-PDU<u>, along with the data identifier,</u> to a <u>receiving</u> radio resource control <u>(RRC) layer</u> ~~(hereinafter, referred to as a RRC) layer with the data identifier~~;

h)   transmitting the sequence number, the version number and the data identifier to <u>a</u> <u>receiving</u> [[the]] physical layer;

i)   determining whether to decode the RLC-PDU stored in the buffer directly by using the sequence number, the version number and the data identifier<u>,</u> or to decode the RLC-

35

PDU after combining it with the RLC-PDU of a previous version, and then [[then,]] transmitting the decoded RLC-PDU to the receiving a receiver physical layer;

j)   transmitting the decoded RLC-PDU to the receiving MAC-D through the second transport channel;

k)   transmitting the decoded RLC-PDU received from the receiving physical layer to the receiving RLC layer through the second logical channel; and

l)   transmitting the decoded RLC-PDU, after analyzing it in the receiving RLC layer, to a receiving [[an]] upper layer, and transmitting a response to the transmitting receiver RLC layer.

17.   (currently amended) A computer readable data recording media having instructions for implementing a data processing method for a hybrid automatic repeat request (HARQ) [[ARQ]] type II/III on an [[a]] uplink of a wide-band radio communication system having a processor, the method comprising the functions of:

a)   storing a radio link control (RLC) – protocol data unit (PDU) (RLC-PDU) (hereinafter, referred to as a RLC-PDU) to a buffer and generating a data identifier to identify the RLC-PDU, and then [[then,]] transmitting the data identifier and RLC-PDU with a HARQ-RLC-Control-PDU that protocol data unit which includes information from the RLC-PDU (hereinafter, referred to as a HARQ-RLC-Control-PDU) to a medium access control dedicated entity (MAC-D) dedicated (hereinafter, referred to as a MAC-D), treating a general user equipment of a medium access control (MAC) [[MAC]] layer, through a transport channel;

b)   transmitting the data identifier and the HARQ-RLC-Control-PDU and the data identifier to an [[the]] RLC layer through a logical channel;

36

c)   transmitting a sequence number and a version number, acquired by analyzing the

HARQ-RLC-Control-PDU, along with the data identifier, to a radio resource control (RRC)

layer (hereinafter, referred to as a RRC) with the data identifier;

d)   transmitting the sequence number, the version number and the data identifier to a

[[the]] physical layer;

e)   determining whether to decode the RLC-PDU stored in the buffer directly by

using the sequence number, the version number and the data identifier, or to decode the RLC-

PDU after combining the RLC-PDU [[it]] with an RLC-PDU of a previous version, and then

transmitting the decoded RLC-PDU to the physical layer;

f)   transmitting the decoded RLC-PDU to the MAC-D through the transport channel;

g)   transmitting the RLC-PDU received from the physical layer to the RLC layer

through the logical channel; and

h)   transmitting the RLC-PDU, after analyzing it in the RLC layer, to an upper layer,

and transmitting a response to an [[the]] RLC layer of a [[the]] user equipment.

18.   (new) A data processing method for a hybrid automatic repeat request (HARQ)

type II/III on an uplink of a wide-band radio communication system, the method comprising the

steps of:

a)   responsive to a request to retransmit data to a receiver, generating in a radio link

control (RLC) layer (i) a data packet comprising a header and a payload, the header comprising a

plurality of header fields, the payload comprising the data, and (ii) a control packet comprising at

least one value copied from at least one of the header fields, the at least one value comprising a

sequence number and a version number;

37

b)   transmitting the data packet and the control packet from the RLC layer to a medium access control (MAC) layer via at least one logical channel;

c)   transmitting the data packet and the control packet from the MAC layer to a physical layer via at least one transport channel;

d)   packaging the data packet and the control packet into a single radio transmission unit, wherein at least the control packet is encoded using a low coding rate; and

f)   transmitting the radio transmission unit to the receiver via a physical channel.

19.   (new) A data processing method for a hybrid automatic repeat request (HARQ) type II/III on an uplink of a wide-band radio communication system, the method comprising the steps of:

a)   transmitting a request that a transmitter retransmit data;

b)   receiving at a physical layer via a physical channel a radio transmission unit comprising (i) a data packet comprising a header and a payload, the header comprising at least one header field, the payload comprising the data, and (ii) a control packet comprising at least one value copied from the at least one header field, the at least one value comprising a sequence number and a version number, the control packet having been encoded using a low coding rate;

c)   storing the data packet to a buffer;

d)   generating a data identifier to identify the data packet;

e)   transmitting the data identifier and the control packet from the physical layer to a medium access control (MAC) layer via at least one transport channel;

f)   transmitting the data identifier and the control packet from the MAC layer to a radio link control (RLC) layer via at least one logical channel;

38

g)   transmitting the sequence number and the version number, acquired by analyzing the control packet, along with the data identifier, from the RLC layer to a radio resource control (RRC) layer;

h)   transmitting the sequence number, the version number and the data identifier from the RRC layer to the physical layer;

i)   making a determination whether to decode the data packet stored in the buffer directly by using the sequence number, the version number and the data identifier, or to decode the data packet after combining the data packet with a data packet of a previous version;

j)   decoding the data packet based on the determination;

k)   transmitting the decoded data packet to the physical layer;

l)   transmitting the decoded data packet from the physical layer to the MAC layer via the at least one transport channel;

m)   transmitting the decoded data packet from the MAC layer to the RLC layer via the at least one logical channel;

n)   transmitting the decoded data packet from the RLC layer to an upper layer; and

o)   transmitting a response from the RLC layer to an RLC layer of the transmitter.